

Montgomery County School Starting Times Presentation

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- No special knowledge of sleep science, but did some research on effects of school starting times on academic outcomes.

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- But "teens have their own biological rhythm, and forcing them to adapt to an adult timetable is counterproductive. Adolescents tend to be classic night owls, staying up late and sleeping in late. This pattern is caused by a biologically driven shift in the circadian cycle that gives teens a troublesome kick in alertness at about the time the people around them (younger and older) are getting sleepy and going to bed" (Dement and Vaughan 1999).

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- Some high schools have been moving to later bell times.

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- However, some of the field evidence not very convincing (e.g., studies looking at effects on grades from one year to the next within one district but without controlling for anything).
- Important to know what happens in the field because individual behavior can counteract or augment the effects of changing school starting times.

- Using data to estimate the effects of school starting times on ACT scores and attendance rates.

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Minnesota Setup

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- Rough explanation of methodology: comparing changes in ACT scores and attendance over time in schools that did and did not change bell times.
- Slightly more technical explanation: regressions of ACT scores and attendance on school starting times, controlling for factors such as gender, race, family income, home language, grade, school fixed effects, and year fixed effects.

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Minnesota Data

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- self-collected data on school schedules
- school-level and district-level covariates from Common Core of Data
- attendance data from state department of education

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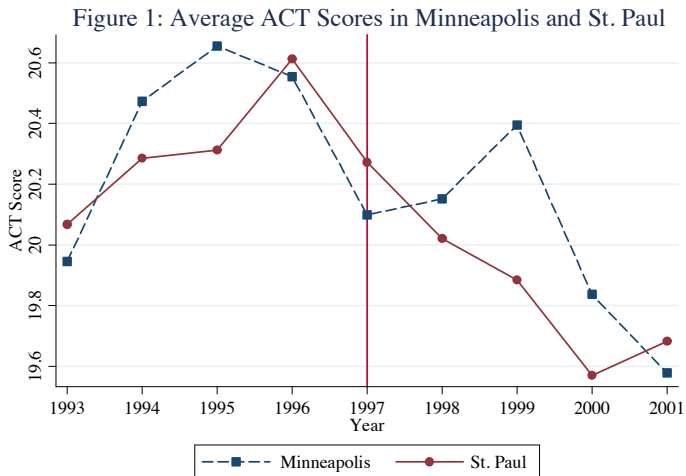
Minneapolis and St. Paul Similarities

Table 1: Characteristics of the Population in Minneapolis and St. Paul

<i>Variable</i>	Minneapolis	St. Paul
Median Household Income (1999)	✔ \$37,974	✔ \$38,774
% of Population Aged 25 and Over with B.A. (2000)	✔ 37.4%	✔ 32.0%
% White in Population (2000)	✔ 62.5%	✔ 64.0%
% Black in Population (2000)	✔ 17.8%	✔ 11.4%
% Asian in Population (2000)	✔ 6.1%	✔ 12.3%
% Hispanic in Population (2000)	✔ 7.6%	✔ 7.9%
Unemployment Rate (1990)	✔ 4.3%	✔ 4.6%
Unemployment Rate (2000)	✔ 3.0%	✔ 3.2%
Unemployment Rate (2005)	✔ 4.2%	✔ 4.4%
Median Age of Population in Years (2000)	✔ 31.2	✔ 31.0
Land Area in Square Miles	✔ 54.9	✔ 52.8
Population (2000)	✔ 382,618	✔ 287,151
Population Growth (1990 to 2000)	✔ 3.9%	✔ 5.5%

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ACT Scores in Minneapolis and St. Paul



- A precise 0 on the starting time variable.

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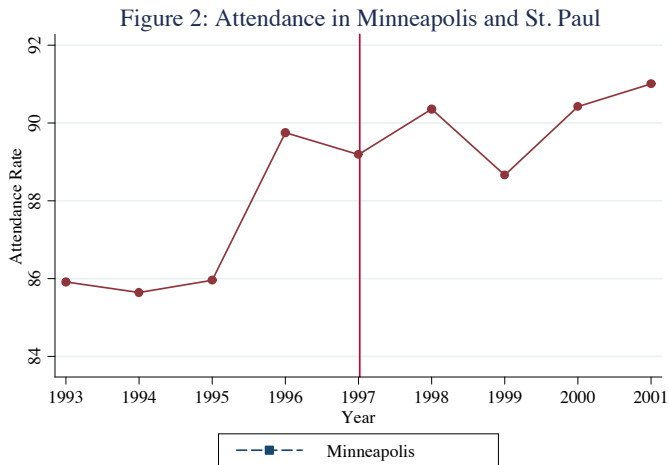
Minnesota Regression Results

- A precise 0 on the starting time variable.
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- Coefficients on covariates are significant in the expected direction.
- Do not find an effect for subgroups or on sections of the test.

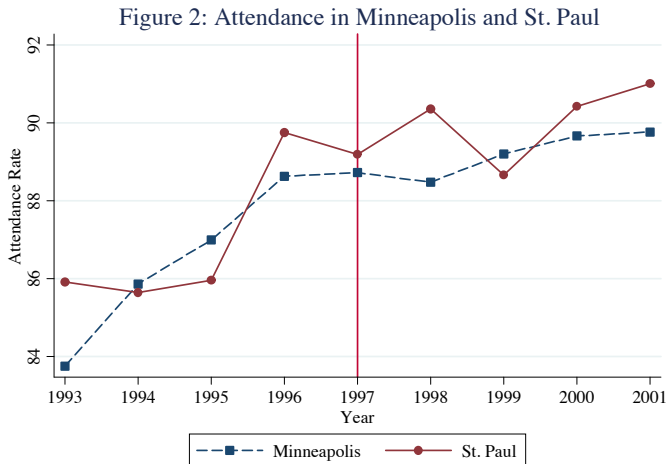
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Attendance in Minneapolis and St. Paul



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Attendance in Minneapolis and St. Paul



- Also did a large number of "robustness checks."

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- Did some school-level test score analysis on Kansas state assessments and Virginia EOC exams, and also found no effect of school starting times.

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- There may be other benefits: feeling better-rested, lower crime (?), lower teenage pregnancy (?), fewer (or more?) automobile accidents.

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- There may be other benefits: feeling better-rested, lower crime (?), lower teenage pregnancy (?), fewer (or more?) automobile accidents.
- Also need to think about costs: bus schedules (?), union contracts (?), effects on sports/extracurricular activities/work (?)

Discussion

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- Teachers' or parents' schedules may play some role.
- Maybe more learning per unit of time when kids get more sleep but more learning overall when they're awake longer.
- Later school starting times mean that kids are in school later in the afternoon, when they are also tired.